PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 31 May 2001 (31.05.01)	
International application No. PCT/CA00/01097	**Applicant's or agent's file reference** 1038-1078MIS
International filing date (day/month/year) 21 September 2000 (21.09.00)	**Priority date** (day/month/year) 22 September 1999 (22.09.99)
Applicant BRUNHAM, Robert, C.	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

19 April 2001 (19.04.01)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO **34, chemin des Colombettes** **1211 Geneva 20, Switzerland**	Authorized officer Charlotte ENGER
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70) 12

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
1038-1078 MIS		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/CA00/01097	21/09/2000	22/09/1999

International Patent Classification (IPC) or national classification and IPC
C12N15/54

Applicant
THE UNIVERSITY OF MANITOBA et al.

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

I	☒	Basis of the report
II	☐	Priority
III	☐	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	☐	Lack of unity of invention
V	☒	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
VI	☐	Certain documents cited
VII	☐	Certain defects in the international application
VIII	☒	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
19/04/2001	24.01.2002
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Ury, A Telephone No. +49 89 2399 8411

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/CA00/01097

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:
Description, pages:

1-15 as originally filed

Claims, No.:

1-21 with telefax of 03/12/2001

Drawings, sheets:

1/3-3/3 as originally filed

Sequence listing part of the description, pages:

1-2, filed with the letter of 15.11.00

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☒ furnished subsequently to this Authority in written form.
- ☒ furnished subsequently to this Authority in computer readable form.
- ☒ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☒ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-21
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-21
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-9, 20, 21
	No:	Claims	

2. Citations and explanations
   see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

It m V.

Reference is made to the following document:

~~D2: WO 98 02546 A (UNIV MANITOBA ;BRUNHAM ROBERT C (CA)) 22~~ January 1998 (1998-01-22)

I) The closest prior art document is D2 which discloses a protective immune response to *Chlamydia trachomatis* using a DNA sequence which encodes the MOMP protein of *Chlamydia trachomatis* in a plasmid.
The present application provides an alternative solution, i.e. a protective immune response to *Chlamydia trachomatis* using a DNA sequence which encodes the serine-threonine kinase (STK) of *Chlamydia trachomatis* in a plasmid.

This solution to the problem of DNA immunization against *Chlamydia trachomatis* is neither disclosed nor rendered obvious by the prior art cited in the ISR. Consequently, the subject-matter of present claims 1-21 fulfils the requirements of Article 33.2 and 3 PCT.

III) For the assessment of the present claims 10-19 on the question whether they are industrially applicable, no unified criteria exist in the PCT Contracting States. The patentability can also be dependent upon the formulation of the claims. The EPO, for example, does not recognize as industrially applicable the subject-matter of claims to the use of a compound in medical treatment, but may allow, however, claims to a known compound for first use in medical treatment and the use of such a compound for the manufacture of a medicament for a new medical treatment.

Item VIII.

It would seem that the nucleotide sequence of *Chlamydia* STK (in particular *Chlamydia trachomatis* STK) was not known in the prior art at the filing date of the present application. If this were indeed to be the case, all the claims lacking the nucleotide sequence of *Chlamydia* STK (in particular *Chlamydia trachomatis* STK: SEQ ID NO:1) would then be objectionable under Article 6 PCT and Rule 6.3 (a) for lack of a technical feature essential to the definition of the invention.

CLAIMS

What I claim is:

1. A non-replicating vector comprising:

a nucleotide sequence encoding a serine-threonine kinase (STK) of a strain of *Chlamydia* producing chlamydial infections of the lung or a fragment of said STK that generates a STK-specific immune response, and

a promoter sequence operatively coupled to said nucleotide sequence for expression of said STK in a host to which the vector is administered.

2. The vector of claim 1 wherein said promoter sequence is a cytomegalovirus promoter.

3. The vector of claim 2 wherein the cytomegalovirus promoter is contained in the human cytomegalovirus major immediate-early promoter-enhancer region.

4. The vector of claim 1 which is a plasmid vector.

5. The vector of claim 1 wherein said nucleotide sequence has SEQ ID No: 1.

6. The vector of claim 1 wherein said strain of *Chlamydia* is a strain of *Chlamydia trachomatis*.

7. The vector of claim 6 wherein said non-replicating vector comprises plasmid pcDNA3 containing said promoter sequence and into which said nucleotide sequence is inserted in operative relation to said promoter sequence.

8. The vector of claim 7 wherein said nucleotide sequence has SEQ ID No: 1.

9. An immunogenic composition for *in vivo* administration to a host for the generation in the host of a protective immune response to a serine-thresnine kinase (STK) of a strain of *Chlamydia* producing chlamydial infections of the lung, comprising a non-replicating vector as claimed in claim 1, and a pharmaceutically-acceptable carrier therefor.

10. A method of immunizing a host against disease caused by infection with a strain of *Chlamydia* producing chlamydial infections of the lung, which comprises administering to said host an effective amount of a non-replicating vector as claimed in claim 1.

11. A method of using a gene encoding a serine-threonine kinase (STK) of a strain of *Chlamydia* producing chlamydial infections of the lung or a fragment of said STK that generates a STK-specific immune response, to produce an immune response in a host, which comprises:

isolating said gene,

operatively linking said gene to at least one control sequence to produce a non-replicating vector, said control sequence directing expression of said STK or fragment thereof when introduced into a host to produce an immune response to said STK or fragment thereof, and

introducing said vector into a host.

12. The method of claim 11 wherein said control sequence is a cytomegalovirus promoter.

13. The method of claim 12 wherein the cytomegalovirus promoter is contained in the human cytomegalovirus major immediate-early promoter-enhancer region.

14. The method of claim 11 wherein said non-replicating vector is a plasmid vector.

15. The method of claim 11 wherein said nucleotide sequence has SEQ ID No: 1.

16. The method of claim 11 wherein said strain of *Chlamydia* is a strain of *Chlamydia trachomatis*.

17. The method of claim 11 wherein said non-replicating vector comprises plasmid pcDNA3 containing said control sequence into which said gene encoding STK is inserted in operative relation to said control sequence.

18. The method of claim 17 wherein said nucleotide sequence has SEQ ID No: 1.

19. The method of claim 11 wherein said host is a human host.

20. A method of producing a vaccine for protection of a host against disease caused by infection with a strain of *Chlamydia* producing chlamydial infections of the lung, which comprises:

isolating a nucleotide sequence encoding a serine-threonine kinase (STK) of a strain of *Chlamydia* producing chlamydial infections of the lung or a fragment of said STK that generates a STK-specific immune response,

operatively linking said nucleotide sequence to at least one control sequence to produce a non-replicating vector, the control sequence directing expression of said

PATENT COOPERATION TREATY

by fax and post

From th
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

STEWART, Michael I.
SIM & McBURNEY
330 University Avenue
6th Floor
Toronto, Ontario M5G 1R7
CANADA

+1 416 595 1163

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Rule 71.1)

	Date of mailing *(day/month/year)* 24.01.2002
Applicant's or agent's file reference 1038-1078 MIS	**IMPORTANT NOTIFICATION**

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/CA00/01097	21/09/2000	22/09/1999

Applicant
THE UNIVERSITY OF MANITOBA et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of th report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/	Authorized officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 pmu d Fax: +49 89 2399 - 4465	Guerin, A Tel.+49 89 2399-8061

Form PCT/IPEA/416 (July 1992)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
1038-1078 MIS		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/CA00/01097	21/09/2000	22/09/1999
International Patent Classification (IPC) or national classification and IPC C12N15/54		
Applicant THE UNIVERSITY OF MANITOBA et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☒ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
19/04/2001	24.01.2002
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 pmu d Fax: +49 89 2399 - 4465	Authorized officer Ury, A Telephone No. +49 89 2399 8411

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/CA00/01097

I. Basis f the r port

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:
Description, pages:

1-15 as originally filed

Claims, No.:

1-21 with telefax of 03/12/2001

Drawings, sheets:

1/3-3/3 as originally filed

Sequence listing part of the description, pages:

1-2, filed with the letter of 15.11.00

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
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3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, th international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☒ furnished subsequently to this Authority in written form.
- ☒ furnished subsequently to this Authority in computer readable form.
- ☒ The statement that the subsequently furnished written sequence listing does not go beyond the disclosur in the international application as filed has been furnished.
- ☒ The statement that the information recorded in computer readable form is identical to the written sequenc listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-21
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-21
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-9, 20, 21
	No:	Claims	

2. Citations and explanations
   see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
s e separate sheet

It m V.

Reference is made to the following document:

~~D2: WO 98 02546 A (UNIV MANITOBA ;BRUNHAM ROBERT C (CA)) 22~~ January 1998 (1998-01-22)

I) The closest prior art document is D2 which discloses a protective immune response to *Chlamydia trachomatis* using a DNA sequence which encodes the MOMP protein of *Chlamydia trachomatis* in a plasmid.
The present application provides an alternative solution, i.e. a protective immune response to *Chlamydia trachomatis* using a DNA sequence which encodes the serine-threonine kinase (STK) of *Chlamydia trachomatis* in a plasmid.

This solution to the problem of DNA immunization against *Chlamydia trachomatis* is neither disclosed nor rendered obvious by the prior art cited in the ISR. Consequently, the subject-matter of present claims 1-21 fulfils the requirements of Article 33.2 and 3 PCT.

III) For the assessment of the present claims 10-19 on the question whether they are industrially applicable, no unified criteria exist in the PCT Contracting States. The patentability can also be dependent upon the formulation of the claims. The EPO, for example, does not recognize as industrially applicable the subject-matter of claims to the use of a compound in medical treatment, but may allow, however, claims to a known compound for first use in medical treatment and the use of such a compound for the manufacture of a medicament for a new medical treatment.

Item VIII.

It would seem that the nucleotide sequence of *Chlamydia* STK (in particular *Chlamydia trachomatis* STK) was not known in the prior art at the filing date of the present application. If this were indeed to be the case, all the claims lacking the nucleotide sequence of *Chlamydia* STK (in particular *Chlamydia trachomatis* STK: SEQ ID NO:1) would then be objectionable under Article 6 PCT and Rule 6.3 (a) for lack of a technical feature essential to the definition of the invention.

CLAIMS

What I claim is:

1. A non-replicating vector comprising:

a nucleotide sequence encoding a serine-threonine kinase (STK) of a strain of *Chlamydia* producing chlamydial infections of the lung or a fragment of said STK that generates a STK-specific immune response, and

a promoter sequence operatively coupled to said nucleotide sequence for expression of said STK in a host to which the vector is administered.

2. The vector of claim 1 wherein said promoter sequence is a cytomegalovirus promoter.

3. The vector of claim 2 wherein the cytomegalovirus promoter is contained in the human cytomegalovirus major immediate-early promoter-enhancer region.

4. The vector of claim 1 which is a plasmid vector.

5. The vector of claim 1 wherein said nucleotide sequence has SEQ ID No: 1.

6. The vector of claim 1 wherein said strain of *Chlamydia* is a strain of *Chlamydia trachomatis*.

7. The vector of claim 6 wherein said non-replicating vector comprises plasmid pcDNA3 containing said promoter sequence and into which said nucleotide sequence is inserted in operative relation to said promoter sequence.

8. The vector of claim 7 wherein said nucleotide sequence has SEQ ID No: 1.

9. An immunogenic composition for *in vivo* administration to a host for the generation in the host of a protective immune response to a serine-thresnine kinase (STK) of a strain of *Chlamydia* producing chlamydial infections of the lung, comprising a non-replicating vector as claimed in claim 1, and a pharmaceutically-acceptable carrier therefor.

10. A method of immunizing a host against disease caused by infection with a strain of *Chlamydia* producing chlamydial infections of the lung, which comprises administering to said host an effective amount of a non-replicating vector as claimed in claim 1.

11. A method of using a gene encoding a serine-threonine kinase (STK) of a strain of *Chlamydia* producing chlamydial infections of the lung or a fragment of said STK that generates a STK-specific immune response, to produce an immune response in a host, which comprises:

isolating said gene,

operatively linking said gene to at least one control sequence to produce a non-replicating vector, said control sequence directing expression of said STK or fragment thereof when introduced into a host to produce an immune response to said STK or fragment thereof, and

introducing said vector into a host.

12. The method of claim 11 wherein said control sequence is a cytomegalovirus promoter.

13. The method of claim 12 wherein the cytomegalovirus promoter is contained in the human cytomegalovirus major immediate-early promoter-enhancer region.

14. The method of claim 11 wherein said non-replicating vector is a plasmid vector.

15. The method of claim 11 wherein said nucleotide sequence has SEQ ID No: 1.

16. The method of claim 11 wherein said strain of *Chlamydia* is a strain of *Chlamydia trachomatis*.

17. The method of claim 11 wherein said non-replicating vector comprises plasmid pcDNA3 containing said control sequence into which said gene encoding STK is inserted in operative relation to said control sequence.

18. The method of claim 17 wherein said nucleotide sequence has SEQ ID No: 1.

19. The method of claim 11 wherein said host is a human host.

20. A method of producing a vaccine for protection of a host against disease caused by infection with a strain of *Chlamydia* producing chlamydial infections f the lung, which comprises:

isolating a nucleotide sequence encoding a serine-threonine kinase (STK) of a strain of *Chlamydia* producing chlamydial infections of the lung or a fragment of said STK that generates a STK-specific immune response,

operatively linking said nucleotide sequence to at least one control sequence to produce a non-replicating vector, the control sequence directing expression of said

STK or fragment thereof when introduced to a host to produce an immune response to said STK or fragment thereof, and

formulating said vector as a vaccine for *in vivo* administration to a host.

21. A vaccine produced by a method as claimed in claim 20.

STK or fragment thereof when introduced to a host to produce an immune response to said STK or fragment thereof, and

formulating said vector as a vaccine for *in vivo* administration to a host.

21. A vaccine produced by a method as claimed in claim 20.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

To:
Sim & McBurney
Attn. STEWART, Michael I.
330 University Avenue
6th floor
Toronto, Ontario M5G 1R7
CANADA

Applicant's or agent's file reference 1038-1078MIS	Date of mailing (day/month/year) 26/01/2001
International application No. PCT/CA 00/ 01097	FOR FURTHER ACTION See paragraphs 1 and 4 below
Applicant THE UNIVERSITY OF MANITOBA et al.	International filing date (day/month/year) 21/09/2000

1. [X] The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:
The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Fascimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. [ ] The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. [ ] **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

[ ] the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

[ ] no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90*bis*.1 and 90*bis*.3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within **20 months** from the priority date, th applicant must perform the prescrib d acts for entry into the national phase before all designated Offices which hav not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 po nl, Fax: (+31-70) 340-3016	Authorized officer Catherine Humbert

Form PCT/ISA/220 (July 1998)

NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international pbulication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if th languag of the international application is French, the letter must be in French.

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped),whether

(i) the claim is unchanged;

(ii) the claim is cancelled;

(iii) the claim is new;

(iv) the claim replaces one or more claims as filed;

(v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."

2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."

3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."

4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international appplication is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
1038-1078MIS		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/CA 00/ 01097	21/09/2000	22/09/1999
Applicant		
THE UNIVERSITY OF MANITOBA et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant *according to Article 18. A copy is being transmitted to the International Bureau.*

This International Search Report consists of a total of 4 sheets.

[X] *It is also accompanied by a copy of each prior art document cited in this report.*

1. **Basis of the report**

   a. *With regard to the* **language,** *the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.*

   [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search *was carried out on the basis of the sequence listing :*

   [ ] contained in the international application in written form.

   [ ] filed together with the international application in computer readable form.

   [X] *furnished subsequently to this Authority in written form.*

   [X] furnished subsequently to this Authority in computer readble form.

   [X] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   [X] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [X] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. _____

   [ ] as suggested by the applicant.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the inv ntion.

   [X] None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No
PC[redacted] 00/01097

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N15/54 C12N15/85 A61K31/711

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C12N A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, BIOSIS, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HOLZMAN L B ET AL: "Identification, molecular cloning, and characterization of dual leucine zipper bearing kinase" JOURNAL OF BIOLOGICAL CHEMISTRY,US,AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, BALTIMORE, MD, vol. 269, no. 49, 9 December 1994 (1994-12-09), pages 30808-30817, XP002120730 ISSN: 0021-9258 page 30808, column 2, paragraph 4 page 30809, column 2, paragraph 4 ---	1-4
A	WO 98 02546 A (UNIV MANITOBA ;BRUNHAM ROBERT C (CA)) 22 January 1998 (1998-01-22) page 23, paragraph 2 figure 7 ---	1-23

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
19 January 2001	26/01/2001

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Mata Vicente, T.

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International Application No
PCT[redacted]00/01097

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	STEPHENS RS ET AL: "Genome sequence of an obligate intracellular pathogen of humans: Chlamydia trachomatis 'see comments!" SCIENCE,US,AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE,, vol. 282, no. 5389, 23 October 1998 (1998-10-23), pages 754-759, XP002104802 ISSN: 0036-8075 page 756, column 2, paragraph 2	5-23

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA 00/01097

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. [X] Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 11-21 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

2. [ ] Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. [ ] Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. [ ] As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. [ ] As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. [ ] As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. [ ] No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

[ ] The additional search fees were accompanied by the applicant's protest.

[ ] No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/CA 00/01097

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9802546 A	22-01-1998	AU 723235 B	24-08-2000
		AU 3431497 A	09-02-1998
		CA 2259595 A	22-01-1998
		EP 0915978 A	19-05-1999
		JP 2000503325 T	21-03-2000

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	**FOR FURTHER ACTION** see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
1038-1078MIS		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/CA 00/ 01097	21/09/2000	22/09/1999
Applicant		
THE UNIVERSITY OF MANITOBA et al.		

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   a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

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   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

   [ ] contained in the international application in written form.

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   [X] furnished subsequently to this Authority in computer readble form.

   [X] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   [X] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

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6. The figure of the **drawings** to be published with the abstract is Figure No. _____

   [ ] as suggested by the applicant.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the invention.

   [X] None of the figures.

INTERNATIONAL SEARCH REPORT

Intern[redacted] Application No
PCT/CA 00/01097

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N15/54 C12N15/85 A61K31/711

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C12N A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, BIOSIS, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HOLZMAN L B ET AL: "Identification, molecular cloning, and characterization of dual leucine zipper bearing kinase" JOURNAL OF BIOLOGICAL CHEMISTRY,US,AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, BALTIMORE, MD, vol. 269, no. 49, 9 December 1994 (1994-12-09), pages 30808-30817, XP002120730 ISSN: 0021-9258 page 30808, column 2, paragraph 4 page 30809, column 2, paragraph 4 ---	1-4
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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
19 January 2001	26/01/2001

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Mata Vicente, T.

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International Application No
PCT/CA 00/01097

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	STEPHENS RS ET AL: "Genome sequence of an obligate intracellular pathogen of humans: Chlamydia trachomatis 'see comments!" SCIENCE,US,AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE,, vol. 282, no. 5389, 23 October 1998 (1998-10-23), pages 754-759, XP002104802 ISSN: 0036-8075 page 756, column 2, paragraph 2	5-23

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

...ormation on patent family members

Inter... Application No
PCT/CA 00/01097

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9802546 A	22-01-1998	AU 723235 B	24-08-2000
		AU 3431497 A	09-02-1998
		CA 2259595 A	22-01-1998
		EP 0915978 A	19-05-1999
		JP 2000503325 T	21-03-2000